

From owner-qrp-l@netcom.com Sat Dec 31 11:31:21 1994
From: LarryN2ELW@aol.com
Date: Sat, 31 Dec 1994 10:00:50 -0500
Message-Id: <941231100046_3115799@aol.com>
Subject: Re: Another trip around the s...

Another query in addition to Nils' line of thought..... How come those little solder burn scars on your hands never quite go away? Are they our "Badge of Courage?" ;)

Just a thought!

Happy New Year to everyone on the list, may 1995 bring what your hearts desire; as well as health, happiness and prosperity!

145 (72 + 73),
de Larry

N2ELW@W2EMU.NJ.USA.NOAM
LarryN2ELW@aol.com

*** I'm in a QRP state of mind! ***

From owner-qrp-l@netcom.com Sat Dec 31 03:42:40 1994
From: NYOUNG@nova.wright.edu
Date: Sat, 31 Dec 1994 01:58:51 -0400 (EDT)
Subject: Another trip around the solar orb, or...
Message-Id: <01HL9YCIC24M8WWOFA@nova.wright.edu>

I won't be on for SKN and I won't be on for QRP SKN and I won't be around for radio when the ball falls or whatever. I get read poetry (translated) and then, contrary to what "they" have planned, I'm reading one of the best short stories that I've written in years... except for the one about Che Guevarra... and maybe the one about this guy standing on the embarcadero where he was thinking about how long it had been since he had seen her and had said nothing at all. But if I read that one, my wife will shoot me and I won't be able to get on the night after SKN when everyone else is just then getting over the hangover that marks the beginning of another trip around the solar orb.

So there.

And sometimes you get lucky.

(Actually, I'd like to do SKN, but Cindy wants to go to the coffee house where I'm reading stuff and, in my own shuffling way, so do I. It's the thought that counts.)

(And yes, I got the Howes kit finished and modified and added to and it works great. Also walks a thin line between home-

built and home-brew, but that's for doctrinaire dogmatic followers of the oligarchy to badger each other over. Me? I just wanna finish the dang thing so I can use it for a QSO or two. Beats burning my fingers on solder. And did you ever notice that it takes forever for solder to melt when you holding three little parts together and just wanna tack 'em together? So how come once the solder's hot and flowed over your fingers and between thumbnail and thumb, it takes it about 8 seconds to congeal or cool or solidify or whatever physical change of state? Explain that one, gurus.)

AND have a happy, healthy new year. And remember: don't drink and drive. Just drive or drink. The price of drugs drove me to drink, and I still don't drive. So there: Stay healthy and see youse on the air later next year.

73

Nils

WB8IJN &c

From owner-qrp-1@netcom.com Sat Dec 31 13:25:24 1994

Date: Sat, 31 Dec 94 09:58:54 MST

Message-Id: <9412311658.AA01788@rgfn.epcc.Edu>

From: ab253@rgfn.epcc.Edu (Andrew Hair)

Subject: QRP Mini-Expedition

To all:

Well, weather permitting, I will once again try some mountain-top QRP work from El Paso on Monday. For those who listened for me on Dec. 26, the weather kept me from climbing to the top of a peak along the southern tip of the Franklin Mountains. The peak I will hike/climb to is a little over 6,000 feet high and offers a pretty clear view for about 100 miles in all directions. I use an MFJ 9020 with a push-up pole, inverted vee antenna that weighs just 4 1/2 pounds. I have made some serious modifications to my last PVC-based antenna as a result of comments and questions from a number of QRPer's from this list. I will also use a small 12 volt battery and 400 mAh rated solar panel to help keep the battery operable if I get a little long-winded!

For those who are interested, I will center my band activity around 14.060 from approximately 1700 - 2100 UTC on Monday. That is 10:00 AM to 2:00 PM MST. I may be on earlier and a little later than mentioned, but that all depends on the weather and my motivation. I hope to have a couple of other hams with me (their calls are KB5ZJX and AB5TZ).

The forecast isn't too bad, at least better than last Monday. I will

look forward to contacting folks from QRP-L (will have the latest crib sheet with me). Thanks again for the interest and support that was shown during my last attempt to climb Mt. Franklin. I will report my results to this list on Tuesday. I hope to hear you on! Have a Happy New Year.

72's es 73's

Andrew Hair - AB5WB
El Paso, Texas

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From owner-qrp-l@netcom.com Sat Dec 31 14:55:16 1994
From: rohrwerk@holonet.net
Date: Sat, 31 Dec 1994 10:02:26 -0800
Message-Id: <199412311802.KAA03602@holonet.net>
Subject: R2 diplexer and preamp

On 12-30-94 k23690@proffa.cc.tut.fi wrote to QRP-L@netcom.com:

> I have been building some modules based on Rick Campbell's R1 receiver
> design (QST August 1992) and I was thinking of expanding it to a
> phasing receiver based on the R2 design (QST January 1993). I was
> studying the R2 circuit diagrams and I could not figure out why the
> same complex mixer termination/diplexer is used as in the simpler R1
> receiver with filter corner frequencies close to the audio band at 300
> Hz and 3 kHz.

Because it works, and works well!

> This has the disadvantage of phase shifts within the wanted audio
> passband and careful matching between I and Q channel diplexers (and
> their corner frequencies) is required. The main part of selectivity is
> still after the phase shifter and combiner so why not simply widen the
> diplexer passband from (say) 150 Hz to 6 kHz. The absolute phase shift
> within the critical 300 Hz to 3 KHz band would be smaller and thus the
> differential phase shift would also be smaller even if the corner
> frequencies in the I and Q channels are not matched by selecting
> identical inductors and capacitors.
>
> Has anybody actually tested this ?

Have you made measurements of the phase shifts, or are you just theorizing? It

would be interesting to know.

I can only answer as a user, not a heavy-duty engineer.

I think the reason for the voice frequency bandwidth is simply to provide that much less of a bandwidth for the following circuitry to process (even though the frequency response of the diplexer is really not all that sharp). But you may well be right.

> If I understand the function of the 40 dB preamp correctly, the gain
> is determined by transistor parameters and thus it can fluctuate in
> the I and Q channels. Does anybody know of any suitable preamp design
> with low noise, 50 ohm input and about 30 dB gain (determined by
> feedback resistors) or is it just simpler to terminate the diplexer
> with a 50 ohm resistor to ground and use a microphone preamp or ultra
> low opamp (such as LT1028) ?

>

> Paul OH3LWR

The gain might be *different*, but it seems to be reasonably *stable* in the given design, and that is the point. These don't have to be matched in gain, because the amplitude difference is adjusted later with the amplitude balance pot.

A 50 ohm resistor would contribute additional noise at this low signal level. Rick mentioned this in discussing some of the other designs he studied. But perhaps an ultra-low noise opamp would offset this disadvantage. Try it and let us know!

The only thing I vaguely remember from audio designs is that metal film resistors have lower noise than carbon film. Perhaps these should be used in the preamp area.

Perhaps there's a transistor that has lower noise at audio frequencies than the 2N3904, that would otherwise be a plug-in replacement.

John, K7R0, published his setup with R2/T2 rigs in December QRPP. He mentions a preamp modification (the second stage becomes a standard grounded-emitter stage rather than a source follower) from W7Z0I that claims to reduce total RX noise figure from 20 to 12 dB. I don't know what this does to strong-signal handling. Perhaps it helps by driving the audio phase shift stages harder and overriding their noise. It certainly increases the overall gain.

I'm waiting for someone to design a DSP setup to handle everything after the preamp -- all modes, millions of bandwidths, noise reduction, passband tuning, etc. And it had better not have the noise that the QST review of that \$4000 Watkins-Johnson receiver discovered!

: John Seboldt rohrwerk@holonet.net / I am Bach of Borg...
: Amateur radio K0JD... / your style will be
: Church of the Annunciation, / assimilated.
: Minneapolis /

-> Alice4Mac 2.3 E QWK Eval:05Mar94

From owner-qrp-1@netcom.com Sat Dec 31 21:06:38 1994
From: Byron8LCZ@aol.com
Date: Sat, 31 Dec 1994 19:18:27 -0500
Message-Id: <941231191826_3435042@aol.com>
Subject: RadioKit QRP30 Review

A very good review, tnx for taking the time, Preston.

Practically all QRP radios have insufficient audio for a speaker. The audio amps are underpowered and usually distort at higher volumn levels. This is the nature of the beast. To keep current demands low, the audio amps are the first place to get reduced or eliminated. Even my Kenwood 450 has a small audio amp/speaker loaded with distortion. I have been using a Heil amplified speaker for all my audio needs so far. I'm still looking for something better. Even the Heil has too much distortion.

A magifying glass is getting to be standard equipment on the bench these days. As my eyes get worst, the parts, traces and PC boards keep getting smaller. Guess we'll just have to grin and bear it. Sometimes I wonder if we really need a rig so small, that you have to hang on to it with one hand and adjust it with the other.

I like a xcvr that gives you the option of running 5 watts or anything less. Is the RadioKit easy to adjust to milliwatt levels ? Is there a potentiometer on the back panel or do you have to open up the enclosure to get at it ? And, how sensitive is it to SWR, above 2:1 ?

While building the OHR QRP watt-meter, i found holding the PC board up to a strong light and looking through the board, helped me to locate solder bridges, (I had two) before putting power on it. Once that was cleared up, it worked great first time. The traces were very close together and i dont think there was a solder mask on the board to prevent solder was flowing between traces.

I especially like reading about both the good and bad features, when trying to decide which of the 50+ kits to buy. The kit market has really exploded the last year or two.

Tnx again for the review. by the way, you didnt say if the first contact you worked was Tokyo, Kiev, or Pago Pago. How about it ?

72, Byron Byron8LCZ@aol.com

From owner-qrp-l@netcom.com Sat Dec 31 03:54:17 1994
Date: Sat, 31 Dec 1994 00:32:58 EST
From: RTRC25A@prodigy.com (MR PRESTON J DOUGLAS)
Message-Id: <013.02518195.RTRC25A@prodigy.com>
Subject: Radiokit QRP30 review (long)

Eureka. It works. Suffice to say there was one solder bridge and one bad regulator, possibly related. Here's the scoop.

Receiver is clean, though a bit high freq noisy. Audio filter leaves a nice clean signal and filters the rest.

Transmitter does do 5w, but it varies slightly at band ends.

Enough volume for a small (optional) speaker. Fits on roof, despite tiny cabinet. Cabinet is very nice, pre-punched--best part of the kit.

Instructions are awful, full of last minute (handwritten) changes which contradict other changes. Not for the faint hearted. If the OHR Explorer is a challenge for you, skip this radio.

There is no QSK. The semi-QSK is fine, but can not be set too fast, or the freq jump at changeover will drive other ops crazy. Yes, there still is a little jump--endemic to the K1BQT design dating back to the original in the Jan 89 Ham Radio (rest in peace.) The jump is not, otherwise a problem, just fingerprints your sig as coming from a K1BQT design!

The verdict: Worth every penny of the 99 bucks (postpaid, even) now that it works. I truly believe Carl at Radiokit could sell a thousand of these kits with slick instructions. But as it stands now, there's so much room for improvement, he could really improve sales with just a small investment of time. NN1G's designs are just improved versions of this same design, as is the OHR, as is the NW80/20 from Dan's. And the OHR Explorer won't drive a speaker, and nothing is as small as this QRP30 and its cousins on 40, 20, 15 and 10. Build it if you dare. You will be in an exclusive club!

Meanwhile, I'm trying to test Dan's Small Parts good will. I made him change my bandpack for the NN1G Mark II from 40m to 80m so's I can build his NW80/20 for 40m. It will be a while till I recover sufficient eyesight to tackle one of those, after the QRP30. (Would you believe the instructions in the QRP30 call for a magnifying glass as an essential tool?)

Public thanks to Charles Furnweger (one of our own on the QRP-L for his help with homemade, hand-drawn board overlays (did I mention the circuit board doesn't have the parts silkscreened? If you build this demon, make yourself a paper overlay with a copy machine that makes two sided copies and has blow-up/shrink functions. Use the pictorial and back

of board drawings in the so-called instructions and adjust their size so they match up back-to-back. By putting the pictorial on the front and the foil side on the back of the same sheet, you can see the traces through the paper when held to the light. Crude, but it sure helped me.) TTFN
Preston WJ2V

From owner-qrp-1@netcom.com Sat Dec 31 16:49:29 1994
Date: Sat, 31 Dec 1994 13:10:15 EST
From: RTRC25A@prodigy.com (MR PRESTON J DOUGLAS)
Message-Id: <013.02522637.RTRC25A@prodigy.com>
Subject: Re: Radiokit QRP30 review (long)

--[FORWARDED PRIVATE MESSAGE]-----

To: pepperb@gov.on.ca
From: RTRC25A
Subject: RE: RADIOKIT QRP30 REVIEW (LONG)
Date: 12/29/94 09:35 PM

Hi, Brian. I think several people found the 602 chip and used it in ham projects (see the Neophyte circa 1987-88) that evolved into K1QBT's first transceiver. He first described the original receiver, the Micro20 in 73 in Feb 88. I think that was the first full superhet project using the 602 as IF and Product detector mixers. I built a Micro 20 (from Radiokit!--the first bag of parts???) and it is still a nice receiver. Littlefield, K1QBT is the apparant originator, and his work, combined with QSK and keying circuitry of Llewellyn W7EL (optimized QRP xcvr QST Aug 80) (and probably DeMaw) is the origin of all the 40-40 kits out there. And some of the "improvements haven't been. For example, the 40-40 has been stripped of its IF amp for "simplicity" and cost. And that original original Micro 20 reciever has a nice S-meter which can still be copied into some of the current rigs (so long as the AGC hasn't been stripped out --ie the 40-40 won't do it) Preston WJ2V

From owner-qrp-1@netcom.com Sat Dec 31 03:02:00 1994
Date: Sat, 31 Dec 94 00:21:14 -0600
From: adams@chuck.dallas.sgi.com (chuck adams)
Message-Id: <9412310621.AA00833@chuck.dallas.sgi.com>
Subject: Re: RE: Power and harmonics

Arjen,

>From what you posted on the OHR 80M five element Chebyshev filter,

i.e. 620pF, 1200pF caps and 3.06uH inductances, here are the attenuation factors in dB from 3MHz to 17Mhz generated using Spice.

freq	vdb(3)
3.000E+06	-9.395E-01
3.200E+06	-7.063E-01
3.400E+06	-3.924E-01
3.600E+06	-9.059E-02
3.800E+06	-1.486E-02
4.000E+06	-4.871E-01
4.200E+06	-1.714E+00
4.400E+06	-3.556E+00
4.600E+06	-5.689E+00
4.800E+06	-7.866E+00
5.000E+06	-9.967E+00
5.200E+06	-1.195E+01
5.400E+06	-1.381E+01
5.600E+06	-1.556E+01
5.800E+06	-1.720E+01
6.000E+06	-1.875E+01
6.200E+06	-2.022E+01
6.400E+06	-2.161E+01
6.600E+06	-2.294E+01
6.800E+06	-2.420E+01
7.000E+06	-2.542E+01
7.200E+06	-2.658E+01
7.400E+06	-2.770E+01
7.600E+06	-2.878E+01
7.800E+06	-2.982E+01
8.000E+06	-3.083E+01
8.200E+06	-3.180E+01
8.400E+06	-3.274E+01
8.600E+06	-3.366E+01
8.800E+06	-3.455E+01
9.000E+06	-3.541E+01
9.200E+06	-3.625E+01
9.400E+06	-3.707E+01
9.600E+06	-3.787E+01
9.800E+06	-3.865E+01
1.000E+07	-3.941E+01
1.020E+07	-4.015E+01
1.040E+07	-4.088E+01
1.060E+07	-4.159E+01
1.080E+07	-4.228E+01
1.100E+07	-4.296E+01

1.120E+07	-4.363E+01
1.140E+07	-4.428E+01
1.160E+07	-4.492E+01
1.180E+07	-4.555E+01
1.200E+07	-4.616E+01
1.220E+07	-4.677E+01
1.240E+07	-4.736E+01
1.260E+07	-4.794E+01
1.280E+07	-4.852E+01
1.300E+07	-4.908E+01
1.320E+07	-4.963E+01
1.340E+07	-5.018E+01
1.360E+07	-5.072E+01
1.380E+07	-5.124E+01
1.400E+07	-5.176E+01
1.420E+07	-5.227E+01
1.440E+07	-5.278E+01
1.460E+07	-5.327E+01
1.480E+07	-5.376E+01
1.500E+07	-5.425E+01
1.520E+07	-5.472E+01
1.540E+07	-5.519E+01
1.560E+07	-5.565E+01
1.580E+07	-5.611E+01
1.600E+07	-5.656E+01
1.620E+07	-5.700E+01
1.640E+07	-5.744E+01
1.660E+07	-5.787E+01
1.680E+07	-5.830E+01
1.700E+07	-5.872E+01

You can see that 20M is down 51dB, 30M is down 39dB, and 40M is down 25dB. Depending upon the spectral purity of the fundamental I'd think that the harmonics probably meet FCC specs in this country. It would be interesting for someone to put one on a spectrum analyzer.

My \$0.02 worth.

dit dit

Chuck Adams K5FO CP-60 adams@sgi.com

From owner-qrp-1@netcom.com Sat Dec 31 20:28:18 1994

Message-Id: <2f05e786.wa8tzg@wa8tzg.mi.org>

Date: Sat, 31 Dec 1994 18:21:41 EST

From: wwm@wa8tzg.mi.org (Bill Meahan)

Subject: Source of SL6440's and BB139's?

Just got my Winter 1994/5 SPRAT (#81) and am greatly intrigued by "The Contester" 40-M receiver. Anybody know a good source of SL6440's on THIS side of the pond? (K8ET perhaps?)

One of the options is varactor tuning. Since I've not tried this before, this looks like a good possibility for a trial. The design calls for BB139's (2 of them). Is there a source arounde here someplace or a good Motorola equivalent that someone knows of?

tnx es 72!

--

Bill Meahan WA8TZG wmeahan@wa8tzg.mi.org
Member of: ARRL, IMRA, NorCal QRP, G-QRP (#8468), IEEE Computer Society
Hey, this is my OWN computer! I can say what I want!
cat: a purr bearing mammal